



Case Study:

D-Fend Solutions

EnforceAir Selection and Acquisition Spanish Air Force



20minutos



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Spanish Air Force integrates a system that captures drones without shooting them down

<https://www.elconfidencialdigital.com/articulo/defensa/ejercito-aire-incorpora-sistema-que-captura-drones-derribarlos/20231004171006646942.html>

It has purchased an Israeli model that allows it to take control of hostile aircrafts and land them safely. The objective is to avoid collateral damage at high visibility events



AURELIO RUIZ ENEBRAL

05/10/23

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The Spanish **Air Force** expands its arsenal of systems to deal with the [threat of drones](#), which in different civilian and military scenarios have become a key element to take into account when ensuring the security of Armed Forces facilities.

The Procurement Directorate of the Air Force Logistics Support Command has awarded Target Tecnología, a company located in Alcobendas (north of the city of Madrid) a contract for "**Procurement of the ENFORCEAIR2 C-UAS system**, complementary to the CROW system."

In fact, the **Spanish company** acts as a representative of a company headquartered in the **Israeli city** of Ra'anana, **D-Fend Solutions**. This Israeli company provides EnforceAir2 anti-drone system, which is now going to be adopted by the Air Force. The system is supplied to the Air Force through Target Tecnología.

Complementary to Indra's system

Air Force officials were looking for a new anti-drone system to **complement the 'Crow' system**.

Several units of this system have been purchased from **Indra**, and the Spanish Air Force [used it](#) to protect the airspace around the Torrejón air base, where planes of heads of state and government landed and took off for the **NATO Summit in Madrid**, in June 2022. It has also been deployed in Mali.

Avoids collateral damage at large events

"In the current context of the existence of aerial drones of various kinds that may pose a **threat to the development of state and aerial activities and to the population in general**, the need arises for the Air and Space Army to have systems that offer an acceptable level of C-UAS (Counter-Unmanned Aerial Systems) protection against this threat", as stated in the tender documents, to justify the investment of 490,000 euros.

According to the Logistics Support Command Procurement Directorate, "Existing C-UAS [anti-drone] systems offer different capabilities from each other. Only by complementing each other they can be effective in covering a wide range of **threats and situations**".

The Air Force has turned to D-Fend Solutions' 'EnforceAir2' anti-drone system, because it "has a unique capability in the market to mitigate risks by **taking control of the UASs, landing them safely** and thus avoiding collateral damage in scenarios such as high-visibility events".

This type of anti-drone technology " **effectively complements the shortcomings of other systems** chosen by the Air Force as part of its C-UAS system and **there is no valid technical alternative.** "

It is emphasized at several points that "the EnforceAir2 C-UAS system is unique in the market in terms of its technical capabilities in high-visibility events, as certified by its manufacturer through the filing of associated patents."

This reference to the "effective and **without collateral damage in high visibility events**" is repeated, so it can be assumed that this will be the objective of the system incorporated by the Air Force.

Dismantling the emergency plan

D-Fend Solutions sent a letter to the Air Force to certify the intellectual property of the 'EnforceAir2' system through several patents.

It was reported that "EnforceAir, the proven C-UAS product from D-Fend Solutions, features the **world's leading cyber and anti-drone RF-based takeover technology**".

Furthermore, "the system, either in autonomous or manual mode, detects, locates and identifies malicious drones in the airspace and then neutralizes the threat by allowing the operator to take full control of the drone and **safely land it in a predefined area**".

The system offers different capabilities, such as the "unique ability to **disconnect a drone from its remote control**" and to do so "**without returning it to its takeoff location or initiating an emergency plan,**" which is particularly important "in case a drone needs to be stopped without deviating its course".

This also allows "taking control of a drone **regardless of its distance**" to the 'EnforceAir2' system.

Kamikaze drones, artillery, or deception

The **proliferation of drones** is a phenomenon that has been emphasized in the military sphere with the war in Ukraine, but it has been a concern to authorities for years, as they need to [shield civilian infrastructures](#) as well as [protect military units](#).

For example, in the area surrounding the **Zarzuela Complex** years ago, [drone overflights](#) were detected at night, which triggered alerts for the **threat to the king's safety**.

Through agreements with companies, or in exercises of the [Army](#), the [Royal Guard](#) and the Air Force for example, the Ministry of Defense has been testing for years different alternatives of systems which could neutralize drones.

Among the options, the use of [drones that collide with or launch nets on hostile drones](#) has been suggested, but also systems similar to the one now being acquired by the Air Force: 'spoofing' technology that [takes control of the hostile drone](#) to direct it to a place where it can be safely captured.

Mechanisms for using [artillery capable of shooting down the drones](#) that pose a threat have been tested and developed, including the option of deploying [trained eagles](#) to intercept certain small, remotely piloted aircrafts.



<https://www.elconfidencialdigital.com/articulo/defensa/ejercito-aire-incorpora-sistema-que-captura-drones-derribarlos/20231004171006646942.html>

EnforceAir2, the anti-drone system that the Spanish Air and Space Force is betting on

20MINUTOS / NEWS / 16.10.2023 - 05:27H

<https://www.20minutos.es/noticia/5180970/0/enforce-air-2-el-sistema-antidron-por-el-que-apuesta-el-ejercito-del-aire-y-del-espacio-de-espana/>

- An anti-drone system capable of taking control of a threatening drone and disconnecting it from its pilot.

EnforceAir2, the most advanced counter-drone system in the market
THE ANTI-DRONE SYSTEM ACQUIRED BY THE SPANISH AIR FORCE IS
AN ENHANCED VERSION OF ITS PREDECESSOR, ENFORCEAIR

Detection Range up to 4.5km

BACKPACK: NEW DEPLOYMENT OPTION

CAPABILITIES

- Detect & Alert
- Locate & Track
- Identify
- Discover Position
- Locate Pilot
- Fend-Off

EnforceAir2 is the **only counter-drone system** in the world able to **take control of a threatening drone, disconnecting it from the pilot and landing it** without collateral damage.

Omnidirectional Coverage **360°**

High performance MIMO antennas (Multiple Input, Multiple Output)

SOURCES: Target Tecnología, Infodefensa, Agencias GRAPHICS: Carlos G. Kindelan

20minutos

EnforceAir2, a counter-drone system for the Spanish Air and Space Force / Henar de Pedro

Tragically, the [war in Ukraine](#) has updated the arms race with new war devices. The **amazing arrival of drones on the battlefield** stands out for heavy use. These miniature, remote-controlled drones have so far had all kinds of civilian use, but the war has proven their value as weapons.

Spain is also deploying them into the Armed Forces. By the end of 2022, the [Ministry of Defense](#) closed on the purchase of three M5D-Airfox units for the Navy. It is a [drone developed and manufactured in Spain](#), the work of the Galician company “Marine Instruments.” Another, [Airbus](#) Spain, is going to start working on the **SiRTAP high endurance drone**, also for the Spanish Air Force.

Drones and anti-drones

Just as modern warfare requires the use of [drones](#), it also **requires the use of anti-drone countermeasures**. In this context, the Spanish Air and Space Force has just awarded the contract for EnforceAir2 C-UAS anti-drone system. Manufactured by the [Israeli company D-Fend Solutions](#) the tender has been awarded to the Spanish company “Target Tecnología.” UAS stands for *unmanned aerial system*.

Features of EnforceAir2:

- Unique capability to mitigate risk by taking control of drones
- Distinguishes between authorized and unauthorized drones
- Lands rogue drones safely in a predefined safe zone
- No interference, no kinetics, no line-of-sight required



EnforceAir2, a counter-drone system for the Spanish Air and Space Force / D-Fend Solutions

EnforceAir2 is an anti-drone system capable of **taking control of a threatening drone, disconnecting it** from its pilot and landing it without collateral damage. The company explains that its objective is to deal with potentially hostile drones, especially at major events, shows, aerial activities, or in the protection of authorities and the general population.

As an upgrade of EnforceAir, EnforceAir2 incorporates improvements such as increasing its ability to detect hostile drones in more varied environments, and increasing its power to disconnect them from their pilot or land them without collateral damage, either in "active" or "passive" mode.

But the primary difference from its predecessor is its design. Now it **can be carried in a portable backpack**, making EnforceAir2 "the perfect ally for stealth and tactical operations," said Target Tecnología in a statement.

Even used to protect the Pope

The company points out that the Vatican is one of the state actors that has relied on this anti-drone solution to ensure, in this case, the protection of [Pope Francis](#), during his international visits. It has also been selected to participate in the U.S. **Federal Aviation Administration's** Airport UAS Detection and Mitigation Research Program.

The company says EnforceAir2 provides **360-degree long-range directional protection and coverage** to protect airport facilities, as well as takeoff and landing airspace corridors.

<https://www.20minutos.es/noticia/5180970/0/enforce-air-2-el-sistema-antidron-por-el-que-apuesta-el-ejercito-del-aire-y-del-espacio-de-espana/>

Seguridad y Vigilancia

ACTUALIDAD OPINIÓN PRODUCTOS TECNOLOGÍA AGENDA ENTIDADES REVISTAS

EnforceAir2 Anti-Drone System Reaches the Spanish Air Force

10/10/2023

<https://www.interempresas.net/Seguridad/Articulos/492715-El-sistema-antidron-Enforce-Air-2-llega-al-Ejercito-del-Aire.html>

The Spanish Air and Space Army has awarded to **Target Technology** the contract bid for EnforceAir2 C-UAS Anti-Drone System, manufactured by D-Fend Solutions. The objective is to contend with potential hostile drones, especially when major events, shows, aerial or state activities take place, as well as when dealing with the protection of authorities and the general population.



EnforceAir2 is the only anti-drone system in the world that can take control of a threatening drone, disconnect it from its pilot and land it without collateral damage. This is a solution that Pope Francis I already relied on to ensure his protection during international visits.

This anti-drone system, now acquired by the Spanish Air Force, is an enhanced version of its predecessor EnforceAir, and which has received the Intersec Homeland Security/Service of the Year 2023 Award. This new version incorporates improvements such as heightened ability to detect hostile drones in much more varied environments and the power to disconnect them from their pilot or land them without collateral damage, either in "active" or "passive" mode. But the primary difference from its predecessor is its design. Now it can be carried in a portable backpack, making EnforceAir2 the perfect ally for stealth and tactical operations.

In the words of Luis Rolandi, deputy director of Target Tecnología, "we are very proud that the Spanish Air Force has decided to invest in our anti-drone system, one of the company's strategic lines. In a world where UAS threats are proliferating and becoming more sophisticated, it is necessary to advance at the same pace regarding defense and security solutions that allow us to deal with these threats. In this sense, EnforceAir2 is presented as the most sophisticated anti-drone system on the market, capable of detecting, mitigating and controlling the threat of hostile drones without inhibiting other benign UASs with which they share airspace. In addition, its flexibility, portability and power make it the perfect ally, especially for tactical operations where stealth and speed become an essential element for the success of the operation."

<https://www.interempresas.net/Seguridad/Articulos/492715-El-sistema-antidron-Enforce-Air-2-llega-al-Ejercito-del-Aire.html>

Defense and Air Space

This is the Spanish Air Force's new portable, anti-drone system that fits in a backpack

October 12, 2023 01:35

https://www.elespanol.com/omicron/defensa-y-espacio/20231012/nuevo-sistema-antidrones-portatil-ejercito-aire-espanol-mochila/800920177_0.html

EnforceAir2 can detect hostile drones via radio frequency and take control without having to shoot them down.



The new Spanish Air Force anti-drone system

D-Fend Solutions • Omicrono

[Ismael Marinero](#)

Unmanned aerial vehicles are a double-edged sword in terms of security. On the one hand, in Spain models are being developed such as [Sirtap, the first Spanish military drone](#), designed to fly in the harshest conditions and to monitor and spy for 20 hours non-stop. On the other hand, **drones also pose a challenge when defending airport airspace**, mass events or [international summits like the one in Granada](#), in which NATO members participated.

To counter these threats, there have been [homemade solutions like those seen in the early stages of the Russian invasion of Ukraine](#) to high-tech platforms such as [Zadira, the laser cannon that Russia uses to burn drones in a few seconds](#). Among the most effective solutions is the new EnforceAir2, manufactured by D-Fend Solutions and **used, for example, by security services to protect Pope Francis I** on international visits.

Now, the company *Target Tecnología*, in charge of marketing this powerful radio frequency-based system in our country, has just announced the signing of a contract with the Spanish Air and Space Force. This improved version of the platform, which earlier received the Intersec Homeland Security/Service of the Year award, does not base its effectiveness on destroying or disabling hostile drones, but on **taking control and landing them, which prevents the possibility of collateral damage**.

Anti-drone system

Anti-drone defense systems are typically large-scale solutions, but they tend to be very heavy equipment, such as [the Epirus Leonidas](#), which uses **radiation pulses in the microwave spectrum** to electronically disable the drones, rendering them useless and unusable. These systems can also focus on a single target in an area crowded with other aircraft, whether manned or unmanned.

Both [anti-drone guns](#) as well as some kinetic or jamming systems, they can be dangerous methods when used in sensitive environments since, in addition to knocking down the hostile element, they **can interfere with nearby communications** or affect the carrying out of the daily operations of a city's transportation or commerce.



EnforceAir2 installed in a vehicle

D-Fend Solutions • Omicrono

However, the operation and features of EnforceAir2 are completely different. To begin with, its architecture is much more versatile, to the point that it **can be carried in a backpack for stealth missions**. The stationary version or the long-range directional version can be installed on the roof of buildings or in open spaces, but there is also the possibility of using it in vehicles, which adds an important mobility factor.

EnforceAir2 is "the only anti-drone system in the world capable of taking control of a threatening drone, disconnecting it from its pilot and landing it without collateral damage." Its detection system, which **can operate in both autonomous and manual mode and reaches 4.5 km**, serves to locate and identify possible hostile drones present in the airspace. This allows the threat to be neutralized and brought down safely to its take-off location or to a predefined area.



The different versions of EnforceAir2

D-Fend Solutions • Omicrono

This latest version of EnforceAir incorporates improvements. First, there is an important **increase in both the detection capacity for hostile drones in more varied environments, as well as its power** to disconnect them from their pilot. But what really differentiates it from its predecessor is its small size, which even allows it to be carried in a backpack to perform tactical operations.

"In a world where **UAS threats are increasingly multiplying and becoming more sophisticated**, it is necessary to advance at the same pace in defense and security solutions that allow us to face these threats," says Luis Rolandi, deputy director of *Target Tecnología* in a press release.

[\[This is the Malaga drone that launches missiles with great precision at 4 km and is already being tested by the Air Force\]](#)

"In this context, EnforceAir2 is positioned as the most sophisticated anti-drone system on the market, capable of detecting, mitigating, and controlling the threat of hostile drones without affecting other 'benign' UASs with which they share airspace." Rolandi also highlights its

“**flexibility, portability, and power**”, which provide a unique versatility on this type of platform.

Airports without drones

The first version of EnforceAir **already operates in many forward operating bases, borders, ports, and international airports**, an ambitious deployment presence that D-Fend Solutions hopes to increase significantly with the second iteration of the system, now acquired by the Spanish Air Force. Further details of the contract are currently unknown, such as the number of units and their cost.

When operating, the system scans and **passively and continuously detects unique communication signals used by commercial drones** in a wide radius. Once a signal is detected, the system can distinguish whether it is an authorized drone or not.



Leonidas anti-drone systems

Epirus

Next, it locates and tracks the drone, in addition to determining the position of the remote pilot and the take-off location. The platform also provides accurate **real-time location tracking**.

During the mitigation process, **EnforceAir takes control of the unauthorized drone**. Thus, the pilot of the hostile aircraft loses all control, including video and telemetry information, and cannot regain it.

https://www.elespanol.com/omicron/defensa-y-espacio/20231012/nuevo-sistema-antidrones-portatil-ejercito-aire-espanol-mochila/800920177_o.html

The system is utilized during Pope Francis’s journeys

Target wins anti-drone system tender for Spanish Air Force

10/11/2023

<https://www.diarioabierto.es/674819/target-gana-la-adjudicacion-del-sistema-antidrones-del-ejercito>

diarioabierto.es. D-Fend Solutions has also been selected to participate in Airport UAS Detection and Mitigation Research Programs in the United States.



Given the proliferation of aerial drones that can pose a hostile threat to the security of citizens, the Spanish Air and Space Force has awarded Target Tecnología, a Spanish company

specializing in 'full security', the tender for the EnforceAir2 C-UAS anti-drone system, manufactured by D-Fend Solutions. The objective is to confront potentially hostile drones, especially for large events, shows, aviation and governmental activities, as well as the protection of officials and the general population.

EnforceAir2 is the only anti-drone system in the world that can take control of a threatening drone, disconnect it from its pilot and land it without collateral damage. This is a solution that Pope Francis I has relied on to guarantee his protection during international visits.

This anti-drone system that the Spanish Air Force is now acquiring is the improved version of its predecessor, EnforceAir, which at the time received the Intersec Homeland Security/Service of the Year 2023 award. This new version is enhanced with increased ability to detect hostile drones in more varied environments, as well as in its power to disconnect them from their pilot or land them without collateral damage, whether in 'active' or 'passive' mode. But the primary difference from its predecessor is its design. Now it can be carried in a portable backpack, making EnforceAir2 the perfect companion for stealth and tactical operations.

In the words of Luis Rolandi, deputy director of *Target Tecnología*, "we are very proud that the Spanish Air Force has decided to invest in our anti-drone system, one of the company's strategic goals. In a world where UAS threats are increasingly multiplying and becoming more sophisticated, it is necessary to advance at the same pace in defense and security solutions that allow us to confront these threats. In this sense, EnforceAir2 has emerged as the most sophisticated anti-drone system on the market, capable of detecting, mitigating, and controlling the threat of hostile drones without inhibiting other "benign" UASs with which they share airspace. In addition, its flexibility, portability, and power make it the perfect companion, especially for tactical operations where stealth and speed become a distinguishing factor for the success of the operation."

EnforceAir2's anti-drone technology, from D-Fend Solutions, a leader in radio frequency (RF), cyber, non-kinetic, non-jamming, detection, and takeover technology against drones, has been selected to participate in airport UAS Detection and Mitigation Research Programs by the United States Federal Aviation Administration (FAA). D-Fend Solutions' core C-UAS system, EnforceAir, will undergo initial testing at Atlantic City International Airport (KACY) and I additional evaluation at other airports.

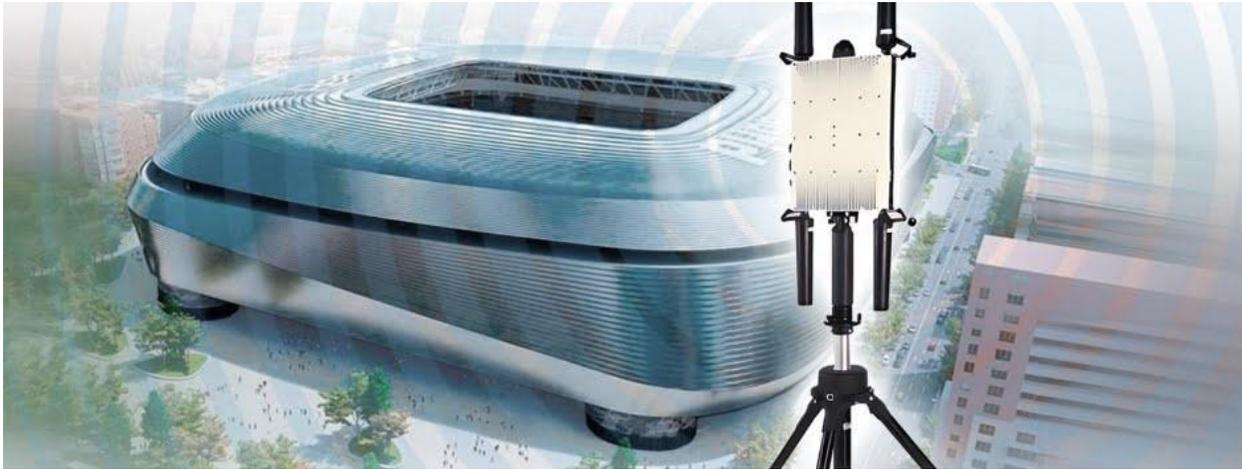
This testing at US airports is because EnforceAir's system design is specifically optimized to provide airports with a surgical counter-drone approach to detect and mitigate threats, allowing authorized nearby drones to continue their operations without collateral effects on navigation or communications systems, damage to infrastructure, or an excessive burden on human

resources. The system provides long-range, 360-degree directional protection and coverage to protect airport facilities, and takeoff and landing in airspace corridors.

This is one more step towards achieving the main defense and security mission of *Target Tecnología* and D-Fend Solutions, as stated by Zohar Halachmi, President and CEO of D-Fend Solutions: "This decision aligns perfectly with our objective of leadership in providing the most advanced technology to overcome unmanned drone threats in the most sensitive environments and airspace, particularly airports, in a controlled manner that enables safe and uninterrupted operations."

A combination of design, power, and flexibility with numerous applications, advantages, and improvements makes EnforceAir2 the leading anti-drone system in technology and a pioneer in the market: "We are very proud to be able to incorporate it into our portfolio of products and we are convinced that because of it, there will be a lot to talk about in the near future", says Luis Rolandi, deputy director of *Target Tecnología*.

<https://www.diarioabierto.es/674819/target-gana-la-adjudicacion-del-sistema-antidrones-del-ejercito>



The EnforcedAir2 system is specialized in protecting large events, shows, aerial activities or the State - Kindelán

Armed Forces

New Air Force system allows taking control over hostile drones from a backpack

Alonso Palacios

Infographic: Kindelán

18/01/2024 – Updated 04:30

https://www-eldebate-com.cdn.ampproject.org/c/s/www.eldebate.com/espana/defensa/20240118/nuevo-sistema-ejercito-aire-permite-tomar-control-drones-hostiles-desde-mochila_167848_amp.html

C-UAS EnforceAir2 Anti-Drone System. This is the new Air and Space Force project in response to the proliferation of aerial drones that can pose a threat. Spanish company Target Tecnología was awarded the tender for the system contract, whose main objective is to combat potentially hostile drones, especially in at **major events, shows, aerial or state activities**, as well as the protection of officials and the general population. EnforceAir2 is an anti-drone system capable of **taking control of a threatening drone**, disconnecting it from its pilot, and landing it without collateral damage.

AIR FORCE NEW
ANTI-DRONE SYSTEM

THIS IS ENFORCEAIR2



EnforceAir2 is the most powerful anti-drone system in the world. It is used to detect hostile drones and neutralize them using the latest generation technology.

4.5km
DETECTION
RANGE

360° OMNI COVERAGE

- Capable of detecting hostile drones without interfering with the operation of other unmanned vehicles operating in the same airspace



High-Performance Antennas

The Spanish forces intend to use EnforceAir2 to maintain control and security at large events



The only anti-drone system capable of taking control of a threatening drone, disconnecting it from its pilot, and landing it without collateral damage



DEPLOYMENT

- Vehicular
- Tactical
- Stationary
- Long-Range Directional
- Backpack

Can be extended into a backpack for use on the go. Ideal for covert use cases

CAPABILITIES

- **Detect and Alert**
 - RF cyber detection
- **Identify**
 - Obtains unique drone identifiers, including make, model, and serial number. Distinguishes between authorized and unauthorized drones
- **Locate & Track**
 - Real-time location tracking by determining the precise position of the drone
- **Fend-Off/Take Control & Land**
 - Disconnect the drone from the pilot's remote control



HINDELANGELE.DEBATE.COM

This anti-drone system, now acquired by the Spanish Air Force, is an improved version of its predecessor EnforceAir. This new version incorporates improvements such as expanded hostile drone detection capabilities in more varied environments. In addition, it also heightens their power to disconnect them from their pilot or land them without collateral damage, both in 'active' and 'passive' modes. But the main difference from its predecessor is its design. Now it can be carried in a **portable backpack**, suitable for **stealth and tactical operations**.

D-Fend Solutions' core C-UAS system, EnforceAir, will undergo initial testing at **Atlantic City International Airport (KACY)** and further evaluation at other airports.

This US airport testing is because EnforceAir is specifically optimized for airports. The system is designed with a "**surgical anti-drone approach**" that allows nearby, authorized drones to continue their operations without collateral effects on navigation or communications systems, damage to infrastructure, or excessive burden on human resources. According to the company, the system provides **360-degree**, long-range **directional protection, and coverage** to protect airport facilities and takeoff and landing airspace corridors.

On the other hand, it should be recalled that, on December 14, 2022, the Council of Ministers approved the contract for logistical support of the **Predator B**, drones controlled by the Air Force for **intelligence, surveillance and reconnaissance** missions. These drones, which are characterized by their specific design for long-duration, high-altitude surveillance, are the real eyes of the Army in areas considered strategic.